

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for producing a hydrorefining catalyst by bringing a carrying solution into contact with a carrier composed of an inorganic porous oxide, the hydrorefining catalyst containing molybdenum, phosphorus, ~~and cobalt~~ or and nickel and being for hydrorefining a vacuum gas oil distillate product, the method comprising the steps of:
preparing the carrying solution containing molybdenum, phosphorus, ~~and cobalt~~ or and nickel, and
bringing the carrier into contact with the carrying solution, wherein:
a molar ratio of molybdenum with respect to phosphorus in the carrying solution is 2.5 to 7.0, a molar ratio of a total of molybdenum, cobalt, and nickel with respect to phosphorus is 3.5 to 9.0, and a molar ratio of molybdenum with respect to a total of cobalt and nickel is 1.9 to 2.8;
pH of the carrying solution is 2 to 5; and
a Raman spectroscopy spectrum of the carrying solution has a peak top between 965 cm^{-1} and 975 cm^{-1} .
2. (Original) The method for producing the hydrorefining catalyst according to claim 1, further comprising a step of calcinating the carrier in an oxidizing atmosphere after the step of bringing the carrier into contact with the carrying solution.

3. (Original) The method for producing the hydrotreating catalyst according to claim 1, wherein the Raman spectroscopy spectrum of the carrying solution has a peak top between 935 cm^{-1} and 945 cm^{-1} , and the peak top between 965 cm^{-1} and 975 cm^{-1} is higher than the peak top between 935 cm^{-1} and 945 cm^{-1} .

4. (Original) The method for producing the hydrotreating catalyst according to claim 1, wherein the Raman spectroscopy spectrum of the carrying solution has a peak top between 1040 cm^{-1} and 1050 cm^{-1} which is lower than the peak top between 965 cm^{-1} and 975 cm^{-1} , or the Raman spectroscopy spectrum of the carrying solution has no peak top between 1040 cm^{-1} and 1050 cm^{-1} .

5. (Original) The method for producing the hydrotreating catalyst according to claim 1, wherein the molar ratio of molybdenum with respect to phosphorus in the carrying solution is 4.1 to 6.5, the molar ratio of the total of molybdenum, cobalt, and nickel with respect to phosphorus is 5.0 to 9.0, and pH of the carrying solution is 3 to 5.

6. (New) The method for producing the hydrotreating catalyst according to claim 1, wherein the composition ratio of the hydrotreating catalyst components is the same as the composition ratio of said components in the carrying solution.

7. (New) A method for producing a hydrotreating catalyst by bringing a carrying solution into contact with a carrier composed of an inorganic porous oxide, the hydrotreating

catalyst containing molybdenum, phosphorus, cobalt and nickel and being for hydrorefining a vacuum gas oil distillate product, the method comprising the steps of:

preparing the carrying solution containing molybdenum, phosphorus, cobalt and nickel,
and

bringing the carrier into contact with the carrying solution, wherein:

a molar ratio of molybdenum with respect to phosphorus in the carrying solution is 2.5 to 7.0, a molar ratio of a total of molybdenum, cobalt, and nickel with respect to phosphorus is 3.5 to 9.0, and a molar ratio of molybdenum with respect to a total of cobalt and nickel is 1.9 to 2.8;

the pH of the carrying solution is 2 to 5;

a Raman spectroscopy spectrum of the carrying solution has a peak top between 965 cm^{-1} and 975 cm^{-1} , and

the carrying solution does not contain inorganic or organic acids other than phosphoric acid.

8. (New) The method for producing the hydrorefining catalyst according to claim 7, further comprising a step of calcinating the carrier in an oxidizing atmosphere after the step of bringing the carrier into contact with the carrying solution.

9. (New) The method for producing the hydrorefining catalyst according to claim 7, wherein the Raman spectroscopy spectrum of the carrying solution has a peak top between 935 cm^{-1} and 945 cm^{-1} , and the peak top between 965 cm^{-1} and 975 cm^{-1} is higher than the peak top between 935 cm^{-1} and 945 cm^{-1} .

10. (New) The method for producing the hydrorefining catalyst according to claim 7, wherein the Raman spectroscopy spectrum of the carrying solution has a peak top between 1040 cm^{-1} and 1050 cm^{-1} which is lower than the peak top between 965 cm^{-1} and 975 cm^{-1} , or the Raman spectroscopy spectrum of the carrying solution has no peak top between 1040 cm^{-1} and 1050 cm^{-1} .

11. (New) The method for producing the hydrorefining catalyst according to claim 7, wherein the molar ratio of molybdenum with respect to phosphorus in the carrying solution is 4.1 to 6.5, the molar ratio of the total of molybdenum, cobalt, and nickel with respect to phosphorus is 5.0 to 9.0, and pH of the carrying solution is 3 to 5.

12. (New) The method for producing the hydrorefining catalyst according to claim 7, wherein the composition ratio of the hydrorefining catalyst components is the same as the composition ratio of said components in the carrying solution.